INTERAGENCY MONITORING OF PROTECTED VISUAL ENVIRONMENTS



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IMPROVE MONITORING UPDATE

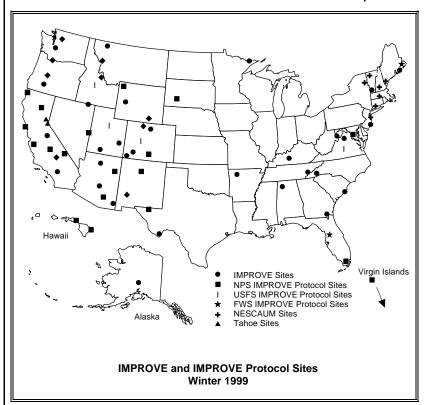
Preliminary data collection statistics for the Winter 1999 season (December, January, and February) are:

<u>Data Type</u>	Collection Percentage
Aerosol Data	95%
Optical (transmissometer) Data	89%
Optical (nephelometer) Data	98%
Scene (photographic) Data	89%

Particulate data have been submitted through November 1998 for all measurements including carbon. The data are available on the UC-Davis FTP site, and as hard copy seasonal summaries.

Optical data have been submitted through August 1998. The data are available on the CIRA FTP site, at ftp://alta_vista.cira.colostate.edu. Scene data are archived but are no longer routinely reported.

Two nephelometer sites will begin monitoring in May. Optical monitoring at the U.S. Forest Service Lye Brook Wilderness, VT (IMPROVE) and Great Gulf Wilderness, NH (USFS IMPROVE Protocol) only occurs during the summer months.



VISIBILITY NEWS....

EPA submits final rule on regional haze

In early February, the Environmental Protection Agency (EPA) delivered a draft final version of the regional haze regulations to the Office of Management and Budget for review. When finalized, the regulations will describe the requirements for states to submit implementation plans to EPA for making "reasonable progress" toward the national goal of "remedying any existing and preventing any future" manmade impairment in the 156 Class I national parks and wilderness areas across the country. EPA is encouraging states to work together in regional groups to evaluate the problem and develop coordinated strategies to improve air quality in Class I areas and in PM_{2.5} nonattainment areas. Over the past several months, the IMPROVE Steering Committee has been developing a network design plan that will provide for monitoring that is representative of all Class I areas.

What is MARAMA?

Charles Pietarinen recently joined the IMPROVE Steering Committee as a representative from the Mid-Atlantic Regional Air Management Association

(MARAMA). The association, organized in February 1990 by Mid-Atlantic governors, mayors, and county commissioners, promotes cooperation and coordination among air quality agencies. MARAMA's mission is to strengthen the skills and capabilities of member agencies and help them work together to prevent and reduce air pollution in the Mid-Atlantic Region. MARAMA's members are: Delaware; the District of Columbia; Maryland; New Jersey; North Carolina; Pennsylvania; Virginia; Philadelphia; and Allegheny County, PA.

MARAMA is active in training, regional projects, and promoting cooperation. It holds numerous workshops and meetings during the year, including an annual air monitoring workshop. MARAMA is working with regional organizations to develop a process for regional visibility planning. For more information see MARAMA's web site at:

http://www.marama.org

VISIBILITY NEWS continued on page 3....

Feature Article

Arizona combines IMPROVE monitoring with its own Class I area monitoring program by Tom Moore and Mike George, Arizona Department of Environmental Quality

In the spring of 1996, the Arizona Department of Environmental Quality (ADEQ) invited a number of national and local federal land managers, EPA staff, and local government representatives to a workshop to explore the creation of a visibility monitoring network in Arizona. The goal of the network would be to document visibility conditions in each of Arizona's 12 Class I areas. As a result of that workshop, a monitoring plan was developed and distributed to the group for approval. The plan was further distributed to a broader group of stakeholders including industry and environmental groups.

That plan recommended adopting IMPROVE protocol monitoring and deploying monitoring equipment in or near all 12 Class I areas, if at all possible. The network design and site locations in the ADEQ monitoring plan are intended to supplement the IMPROVE program's existing sites by tripling the total number of Class I area monitoring sites in Arizona.

Because of resource and infrastructure constraints, two configurations of equipment have been adopted. One is comprised of aerosol sampling, optical measurements, and meteorological monitoring. The alternative consists of only optical and meteorological monitoring. Aerosol sampling has used IMPROVE A and B modules, which will be expanded to include all four modules by the end of 1999. Optical measurements are made with Optec NGN-2 nephelometers. Meteorological measurements include temperature at two heights, relative humidity, wind speed, and wind direction. The Arizona network sites consist of various combinations of optical, aerosol, and meteorological instrumentation. Data are processed through ADEQ contracts using protocols that generally parallel IMPROVE.

Initially, a total of nine new sites were proposed; five with a full array of instruments and four with the alternative set of instruments. Between December 1996 and June 1998, a total of seven sites were installed around Arizona. These are shown in Figure 1. For the two sites included in the plan that have not yet been installed, ADEQ will augment the IMPROVE program's aerosol sampler near the Mount Baldy Wilderness with optical and meteorological instrumentation once local U.S. Forest Service staff. IMPROVE contractors, and ADEQ agree on a site location this year. For the second site, a full array near the Superstition Wilderness will be installed by ADEQ during the summer of 1999; this location will serve the dual purposes of measuring PM_{2.5} background and transport, and determining Class I area impacts immediately east of the Phoenix metropolitan area.

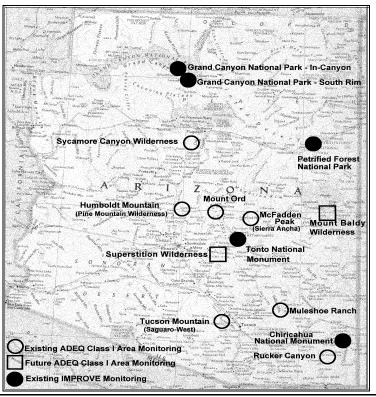
Figure 1. Arizona Class I Visibility Monitoring Network April 1999

On a related note, ADEQ has crafted the statewide EPA-required PM_{2.5} monitoring network to integrate visibility and fine particulate monitoring as much as possible. The Superstition Wilderness site is illustrative of that approach. In addition, ADEQ has conducted aerosol and optical urban haze monitoring in the Phoenix and Tucson metropolitan areas since 1993, using IMPROVE optical data processing protocols. These data have provided valuable information used in deploying the PM_{2.5} and Class I monitoring networks.

In the summer of 1998, the group that attended the original organizational workshop was invited to review the program's progress and recommend any mid-course corrections. From that review, the most significant influence on the continuing form of the program was determined to be the IMPROVE network expansion, and changes to the plan were made based on what was known at that time. As before, the plan was distributed for review and approval. Further changes to the IMPROVE program's operations in Arizona, along with the need to respond to recent communications from the IMPROVE Steering Committee and EPA, has resulted in the need to reconvene the group again. Mid-April 1999 has been targeted for the next meeting.

Tom Moore and Mike George of ADEQ coordinate the visibility program at ADEQ. They can be contacted at:

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VISIBILITY NEWS continued from page 1....

IMPROVE data useful to virtual workgroup

IMPROVE aerosol data are currently being employed extensively in a number of multi-network data sets, data analysis reports, and proposed studies by "The Virtual Workgroup for the PM_{2.5} Analysis Workbook" - a collaborative effort to explore relevant analyses of the PM_{2.5} data to be collected by the new national and state monitoring networks. The goals of this collaboration are to foster an environment for the sharing of ideas and develop a workbook detailing useful analyses of the PM_{2.5} mass and speciated data. The workgroup is supported by an interactive Internet web site at http://capita.wustl.edu/PMFine/. There are currently about a dozen on-line reports, proposed studies, and data sets available on this web site which make use of the extensive IMPROVE aerosol data. Examples include:

- Several merged North American Data Sets which combine IMPROVE and other fine particle data from the U.S. and Canada
- Maps of estimated regional fine particle concentrations
- ➤ Meteorological interpretation of IMPROVE aerosol data
- ➤ Trends analysis
- Episode analysis
- Exploration of relationships between fine particles, ozone, and meteorology.

These IMPROVE-related projects can be accessed directly at: http://capita.wustl.edu/PMFine/Activities/improve/improved.htm.

Folks with knowledge of or interest in IMPROVE are encouraged to register (on the "People" page) on the interactive PMFine web site; review and comment on the web site content; ask questions; submit data, analysis reports, analysis tools, or literature references; and to participate in various workgroup discussions. For additional information, contact:

Rich Poirot/NESCAUM Telephone: 802/241-3840

E-mail: richpo@dec.anr.state.vt.us

WRAP introduces new web site

The Western Regional Air Partnership (WRAP) introduced a new web site to disseminate information about its strategies to reduce haze in national parks and wilderness areas in the West. Internet visitors can also comment on preliminary reports and working documents, and contact committees and forums. The new web site's address is:

http://www.wrapair.org

IMPROVE aerosol site clusters selected

In December 1998 the IMPROVE Steering Committee approved a strategy to implement aerosol monitoring in all 156 mandatory Class I areas during 1999. These areas have been combined into 108 clusters; one IMPROVE site will be located in each cluster. To date, 93 of the 108 clusters have been approved, the remaining 15 are allocated for the California Class I areas and are shown below with tentative cluster names:

1. Acadia, ME NPS 55. Weminuche, CO FS 2. Moosehorn, ME FWS 56. Maroon Bells, CO FS 3. Lye Brook VT FS 57. Rocky Mtm., CO NPS 4. Great Gulf, NH FS 57. Rocky Mtm., CO NPS 5. Brigantine, NJ FWS 59. Badlands, SD NPS 6. Shenandoah, VA NPS 60. Wind Cave, SD NPS 7. James River Face, VA FS 61. Theodore Roosevelt, ND NPS 8. Dolly Sods, WV FS 62. Lotswood, ND FWS 9. Mammoth Cave, KY NPS 63. Medicine Lake, MT FWS 10. Great Smoky Mtns., TN FS 62. Lotswood, ND FWS 11. Shining Rock, NC FS 65. Bridger, WY FS 12. Cohutta, GA FS 66. Yellowstone, WY PS 13. Linville Gorge, NC FWS 69. Craters of the Moon, ID NPS 14. Swanquarter, NC FWS 69. Craters of the Moon, ID NPS 15. Cape Romain, SC FWS 70. Sawtooth, ID FS 16. Okefenokee, G		Cluster Name	Agency		Cluster Name	Agency
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	53.	Great Sand Dunes, CO	NPS	107	. Hawaii Volcanoes, HI	NPS
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A map of the clusters and associated Class I areas is available on the National Park Service's web site, at:

http://www.nature.nps.gov/ard/vis/canmap.htm

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